

1958 edition  
catalog no. 245



# **MILCOR<sup>®</sup>** **Ribform**

high strength steel base for short span concrete slabs  
used in floors, roof decks and over pipe trenches

**standard weight**  
for spans up to 3'-6"

**heavy duty**  
for spans up to 5'-0"

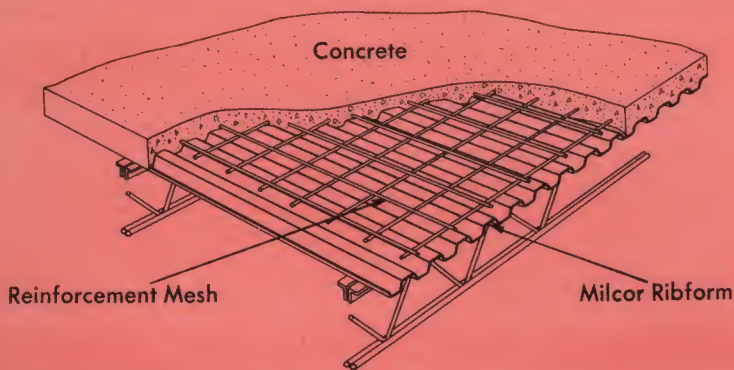


**Inland Steel Products Company**  
Milwaukee 1, Wisconsin



# MILCOR RIBFORM

high strength steel base  
for short-span concrete slabs



**M**ilcor Ribform is a new, permanent steel form for concrete floor and roof slabs poured over steel joists or beams. It is fabricated from high-tensile steel in varying sheet lengths to meet job requirements. The sheets are quickly laid and welded to structural supports to make an inexpensive, rigid base for the concrete.

An economical use of Milcor Ribform is to form the top slab over pipe trenches or other inaccessible locations where it is impractical and expensive to remove wood forms.

Ribform is available in two weights — Standard and Heavy Duty — to satisfy different requirements of span and loads. Both are available in two finishes — black (uncoated) steel and galvanized steel.

## ADVANTAGES

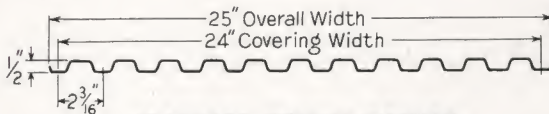
1. Milcor Ribform is a rigid type of centering exerting no side pull on the joists. There is no need for costly temporary bridging.
2. Fabricated from high-tensile steel, Milcor Ribform has a unique ribbed shape that is stronger than ordinary corrugated patterns.
3. Milcor Ribform is made in easily-handled sheets that are quickly placed and inexpensively welded to supports.

4. In place, Milcor Ribform becomes a safe, non-flexible platform for the erection crew and other trades.

5. Milcor Ribform supports the wet concrete with a minimum deflection, using up to 20 per cent less concrete than flexible types of centering.

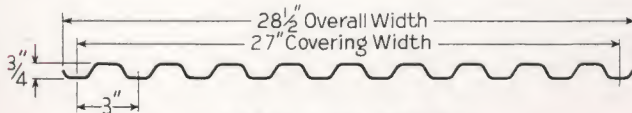
6. The rigid steel base permits the concrete slab to be poured and finished in one operation.

## PHYSICAL PROPERTIES



### STANDARD WEIGHT RIBFORM

Material: High-tensile steel — black or galvanized finish.  
Maximum Sheet Length: 12'-3".



### HEAVY DUTY RIBFORM

Material: High-tensile steel — black or galvanized finish.  
Maximum Sheet Length: 16'-3".

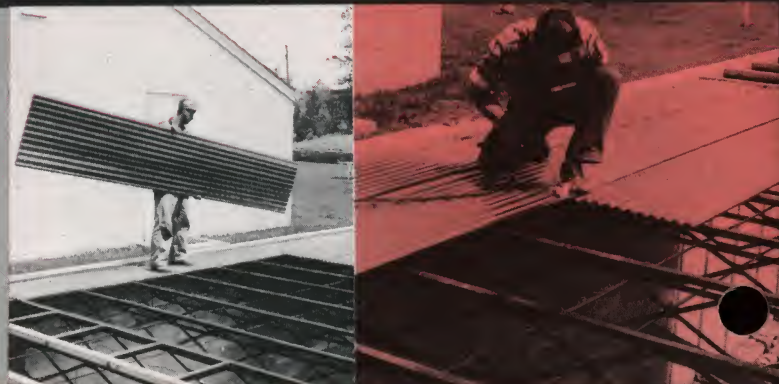
	Standard Weight	Heavy Duty
Weight Black (uncoated) — lbs./sq. ft.	.76	1.1
Weight Galvanized — lbs./sq. ft.	.84	1.2
Moment of Inertia — inches <sup>4</sup>	.010	.030
Section Modulus — inches <sup>3</sup>	.035	.072
Rib Depth — inches	1/2	3/4
Rib Spacing — inches	2-3/16	3
Cover Width — inches	24	27
Overall Width — inches	25	28-1/2

NOTE: Section properties are computed in accordance with A.I.S.I. "Specifications for the Design of Cold Formed Light Gauge Steel."

## ERECTION

"Simple and easy" describes the erection of Milcor Ribform. No special tools or skills are required. It is ordered in sheet lengths that provide end laps of at least two inches over supports. Individual sheets never weigh more than 45 pounds. One or two men can place them quickly.

Positive attachment is assured by steel washers which are placed in the rib of the sheet. The welder builds a plug weld from the washer, through the Ribform, to the steel joist or beam. As soon as a sheet is laid it provides a safe working platform for the erection crew. Scaffolding is seldom required to install Milcor Ribform.





**FLOOR CONSTRUCTION****MAXIMUM SPANS FOR CARRYING WET CONCRETE AND NORMAL LOADS DURING CONSTRUCTION**

The primary structural function of Milcor Ribform is to carry the wet concrete and normal construction live load of the workmen, which in the table at right has been estimated at 20 pounds per square foot. It also provides lateral support against side pull or overturning of the joists during construction.

The concrete slab should be designed to carry all dead and live loads. If reinforcement is required, bars or mesh must be used.

Since permanency is not vital after the concrete hardens, black (uncoated) steel Ribform is generally used in floor construction instead of the more expensive galvanized finish.

The hard temper, high-tensile strength of Ribform steel makes a design stress of 30,000 pounds per square inch conservative and in accordance with A.I.S.I. Specifications for the Design of Light Gage Steel.

Depth of Slab Inches	Wet Concrete Load Lbs./sq. ft.	STANDARD WEIGHT		HEAVY DUTY	
		Maximum Span Inches $wl^2/8$	Deflection Under Wet Concrete at Maximum Span	Maximum Span Inches $wl^2/8$	Deflection Under Wet Concrete at Maximum Span
2½	31	44	.187	64	.264
3	37	42	.179	60	.252
3½	44	40	.169	57	.238
4	50	38	.160	54	.226

NOTES: 1. Deflection based on sheets covering two spans.

2. Design stress ( $f_b$ ) of 30,000 psi was used.

3. Design load consists of weight of wet concrete plus 20 pounds per square foot for construction live loads.

**MAXIMUM FLOOR LOADS FOR SLABS OF RIBFORM AND UNREINFORCED CONCRETE**

This table shows the safe live loads which can be superimposed on unreinforced concrete slabs. The addition of reinforcement will raise the values. Although no reinforcement is needed for the slab to carry these loads, temperature mesh — 6 x 6-10/10 minimum — should be used to prevent unsightly temperature and shrinkage cracks.

NOTES: 1. Negative and positive moment  $= \frac{wl^2}{12}$

2.  $f'_c = 2,000$  psi.

3. Allowable tension stress  $= 0.03 \times 2,000 = 60$  psi.

4. Allowable loads are proportional to the strength of the concrete.

Spacing of Supports Inches	SAFE SUPERIMPOSED LOADS (lbs. per sq. ft.)			
	2" Slab	2½" Slab	3" Slab	3½" Slab
18	188	301	443	608
21	132	213	315	436
24	95	156	233	323
27	70	117	176	246
30		89	136	191
33		68	106	150
36			83	119
42			51	76

**MAXIMUM FLOOR LOADS FOR SLABS OF RIBFORM AND REINFORCED CONCRETE**

The allowable superimposed loads for three slabs of popular design using steel mesh reinforcement are shown in the table at right. Any design of reinforced concrete slab can be used over Milcor Ribform if the span and weight of the wet concrete do not exceed the values shown above in the table of maximum spans.

For greater spans or heavier loads, the use of Milcor Steel Roof Deck, inverted and used as a form for the concrete, should be investigated.

NOTES: 1. Negative and positive moment  $= \frac{wl^2}{12}$

2.  $f'_c = 2,500$  psi;  $f_c = 0.45 \times 2,500 = 1,125$  psi.

3.  $f_s = 30,000$  psi (ACI 306-b)

4.  $d =$  slab thickness minus 1.5 inches.

Spacing of Supports Inches	SAFE SUPERIMPOSED LOADS (lbs. per sq. ft.)		
	3 Inch Slab 6 x 6 — 8/8 $A_s = .041$ sq. in.	3½ Inch Slab 6 x 6 — 6/6 $A_s = .058$ sq. in.	4 Inch Slab 6 x 6 — 6/6 $A_s = .058$ sq. in.
36	153	317	402
39	125	265	337
42	103	223	284
45	84	188	239
48	69	158	203
51		136	174
54		115	150

The use of calcium chloride or other corrosive salts is not recommended as an additive for concrete used over uncoated or galvanized steel.



# Milcor Ribform

steel base for concrete slabs

## LIGHTWEIGHT INSULATING CONCRETE ROOF SLABS OVER RIBFORM

The high strength and low cost of Milcor Ribform make it an ideal base for lightweight insulating concrete using such aggregates as perlite and vermiculite. Tests show that insulating concrete works as a composite section with Ribform to carry roof loads. However, since strength as well as insulating value of concrete varies with the mix, the table below is based on the Ribform carrying both live and dead loads. For less conservative loading values consult your lightweight concrete supplier.

The roofing industry recommends the use of vent clips in the side laps between purlins to avoid build-up of vapor pressure under intense sun which may cause the roofing to blister.



**TOTAL SAFE UNIFORM LOADS (pounds per square foot)**

		SPACING OF SUPPORTS					
		30"	36"	42"	48"	54"	60"
Standard Weight	Total Load	111	78	57	44		
	Applied Live Load	70	40	25	17		
Heavy Duty	Total Load	230	160	117	90	71	57
	Applied Live Load	210	121	76	51	36	26

Table based on  $\frac{wl^2}{8}$  for stress,  $f_s = 30,000$  psi, deflection limited to  $1/240$  span, two or more spans.

## SUGGESTED ARCHITECTS' SPECIFICATIONS

**SCOPE** — This section shall include all material, equipment and labor necessary for the installation of steel centering for concrete floors and roof, complete, in accordance with these specifications and drawings.

**MATERIAL** — Steel centering shall be Ribform as manufactured by Inland Steel Products Company. Type and weight of Ribform shall be determined by the thickness of the slab and its span and shall conform with the published recommendations of the manufacturer.

Sheets shall be fabricated from an (uncoated) (galvanized) steel with a full hard temper.

**INSTALLATION** — Sheets of Ribform shall be placed with the ribs perpendicular to the supports. End

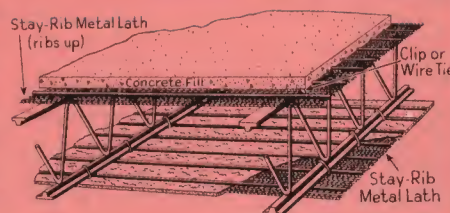
laps shall always occur over structural supports. Sheets shall overlap a minimum of 2" at end laps and one rib at side laps.

Ribform shall be attached by welding through the two sheets at side laps to every structural support. Washers shall be placed in the rib of the top sheet and a plug weld made through the washer and the Ribform to the top chord of the steel support. There shall be a minimum of 25 welds in each 100 square feet of floor or roof.

(Add for lightweight insulating concrete roof slabs) — After sheets have been welded in place insert vent clip at side lap of each sheet, locating clip at mid-point between purlins.

## MILCOR STAY-RIB METAL LATH BASE FOR CONCRETE SLABS

Stay-Rib Metal Lath is another Milcor product which is popular as a form for short-span concrete slabs. It has closely spaced stiffening ribs,  $\frac{3}{8}$ " or  $\frac{3}{4}$ " high, running the full length of the sheet so that it rigidly spans from support to support. Uniquely shaped openings in Milcor Stay-Rib Metal Lath permit the concrete to grip the steel strands so that it acts as a true tensile reinforcement for the slab. For complete information on this combination centering and reinforcement see Milcor Catalog No. 202.



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The roofing industry recommends the use of vent clips in the side lane between Ribform sections.



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